REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance. The present amendment is being made to facilitate prosecution of the application.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 5-16 and 21-68 are pending. Claims 32, 39, 41, 43, 44, 46, 54, 56, 58, 59, 67 and 68 are independent. Claims 5, 7, 8, 10-12, 14-16, 21, 24-28, 30-32, 37-46 and 51-66 are hereby amended. Claims 67 and 68 are hereby added. Claims 1-4 and 17-20 are canceled, without prejudice or disclaimer of subject matter. No new matter is added by these amendments. Support for the amended recitations in the claims is found throughout the specification. Changes to claims are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103, or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

The drawings were objected to. Specifically, the Examiner stated that there is no drawing labeled Figure 1. Applicants disagree. Applicants filed a drawing labeled Figure 1 on December 6, 2001. A copy of Figure 1 is attached at the end of this amendment. Applicants therefore respectfully request that the objection to the drawings be withdrawn.

The specification was objected to. Specifically, the Examiner objected to the abstract. Applicants have amended the abstract to comply with the USPTO rules and procedures. Applicants therefore respectfully request that the objection to the specification be withdrawn.

00262986

Claims 4, 7-9, 11, 12, 16, 20, 24, 25, 28, 32, 39-41, 44-46, 54, 56, 58 and 63-66 were objected to. Applicants have amended these claims in accordance with the Examiner's suggestions. Applicants therefore respectfully request that the objection to the claims be withdrawn.

Claims 4-15, 20-31 and 63 were objected to, but would be allowable if rewritten to overcome minor informalities. Applicants submit that claims 4 and 20 have been canceled and rewritten as claims 67 and 68, respectively. All the minor informalities have been corrected in the respective claims. Claims 5-15, 21-31 and 63 depend on one of claims 67 and 68.

II. REJECTIONS UNDER 35 U.S.C. §102 and 103

Claims 1-3 and 16-19 were rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent No. 5,930,369 to Cox.

Claims 32-39, 45-54, 59-62 and 64 were rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent No. 6,674,873 to Donescu et al.

Claims 40 and 55 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Donescu in view of Cox.

Claims 41, 56 and 65 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Donescu in view of U.S. Patent No. 6,804,374 to Beattie et al.

Claims 42, 43 and 57 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Donescu in view of Beattie et al. and further in view of Cox.

Claim 32 recites, *inter alia*:

"A method of embedding data...

wherein said step of producing modified coefficient values does not use coefficients of magnitude greater than said threshold T and does not use the corresponding information symbols, the value of said threshold T being set to reduce a likelihood of any coefficient having a dominant effect on a correlation of the pseudo random symbol sequence and the information signal in which the data has been embedded." (emphasis added)

As understood by Applicants, U.S. Patent No. 5,930,369 to Cox relates to digital watermarking of audio, image, video or multimedia data and is achieved by inserting the watermark into the components of a decomposition of the data in a manner so as to be visually imperceptible. A frequency spectral image of the data, preferably a Fourier transform of the data, is obtained. A watermark is inserted into components of the frequency spectral image. The resultant watermarked spectral image is subjected to an inverse transform to produce watermarked data. The watermark is extracted from watermarked data by first comparing the watermarked data with the original data to obtain an extracted watermark. Then, the original watermark, original data and the extracted watermark are compared to generate a watermark, which is analyzed for authenticity of the watermark.

As understood by Applicants, U.S. Patent No. 6,674,873 to Donescu et al. relates to a method of inserting an additional information item in a set of digital data representing physical quantities, the data having been processed by transformation, quantization and entropic coding in order to be compressed, characterized in that it comprises the steps of extracting a subset of low-frequency coefficients, from the set of data, entropic decoding of the coefficients of the subset, modulation of the decoded coefficients by a signal representing the additional information item, so as to form quantized watermarked coefficients, entropic coding of the

23

watermarked coefficients, and insertion of the watermarked encoded coefficients in place of the coefficients of the subset, in the set of data.

As understood by Applicants, U.S. Patent No. 6,804,374 to Beattie et al. relates to a method and apparatus detects the presence of a watermark in digital data. The digital data may represent picture or sound information and maybe in the form of a broadcast television signal or a signal that has been recorded on a recording medium such as a compact disc. The watermark includes coefficients, which have been subject to an inverse local orthogonal transform before being embedded in the input data. In order to detect the presence of the watermark, the input watermarked data is first forward transformed and subtracted from the watermark coefficients so as to derive the data coefficients.

Concerning claims 32, 45 and 46, the Examiner indicated that at column 9, lines 7-12 of Donescu, Donescu discloses, "comparing the magnitude of the coefficients with a threshold T." However there is clearly no disclosure of this claim feature in Donescu. Donescu merely states that the low frequency coefficients of the compressed media are extracted. There are various ways in which the low frequency coefficients could be extracted. The low frequency coefficients are typically provided in a known position in transform data when an image is transformed into the transformed domain. Accordingly, the low frequency coefficients are not identified by their magnitude.

Furthermore, the Examiner argues that the comparison with a threshold T corresponds to a step of filtering. Again filtering does not identify that the magnitude of coefficients are compared with a threshold. If the transform coefficients have a magnitude, which exceeds a particular threshold, and are passed through a low pass filter, if all the

coefficients have the same magnitude then they will all appear at the output of the filter substantially unmodified.

Moreover, claim 32 is clearly distinguished by not only the step of comparing the coefficients with a threshold but also by the step of not using the coefficients which have a magnitude greater than the threshold and not using the corresponding information symbols. The method of embedding according to claim 32 provides an effect that where a coefficient of the transform domain is high, it may have a dominant effect on a correlation sum formed when the embedded data is recovered by correlating the information signal with the pseudo random signal at the detector. By comparing the coefficients with the threshold T and not using these coefficients with the corresponding information symbol this effect can be avoided or at least reduced. There is no teaching of this inventive effect in Donescu of these claim limitations. As a result, claim 32 and correspondingly claims 45 and 46, are, therefore, novel and have an inventive step with respect to what is disclosed in Donescu.

Claim 39 is a method of detecting data embedded in an information signal representing material. Again the Examiner has argued that the step of comparing the magnitude of the received coefficients with a threshold T corresponds to filtering as referred to in column 13 between lines 25 and 27 of Donescu. For similar arguments explained above, filtering does not correspond to comparing the coefficients with a threshold. Again the value of the threshold coefficients may not be changed even if they are passed through a low pass filter and if all the coefficients have the same value corresponding to a DC signal. Accordingly, claim 39 and correspondingly claims 54 and 64 are both novel and have an inventive step in that they are not obvious.

25

00262986

Concerning claims 40, 41, 50, 56 and 65, as explained above, the Examiner's argument that Donescu discloses comparing the magnitude of coefficients with a threshold Tclip based upon a disclosure of identifying the low frequency coefficients in the transformed domain, is incorrect. Donescu merely states that the low frequency components are selected and that there are various ways of performing this selection. More particularly low frequency components of a transform domain image are identified from a position in the transformed domain image.

Finally, the Examiner argues that Beattie discloses a watermark detecting method in which the magnitude of the coefficients is clipped. However, Beattie does not disclose that the magnitude of the coefficients are clipped, but that a scaling factor that is applied to the watermark coefficients is clipped. Thus, the method in Beattie differs from the detecting method according to claim 41 because the coefficients are not scaled and the scaling factors are not clipped. According to claim 41, the transform domain coefficients are clipped with respect to a magnitude Tclip, both the unclipped and the clipped coefficients being correlated with the pseudo random sequence to detect data embedded in the information signal. Accordingly claim 41 and correspondingly claims 56 and 65 are not obvious.

Applicants submit that Cox, Donescu and Beattie - taken either alone or in combination - do not teach or suggest the above-identified features of claim 32. Specifically, Applicants submit that there is no teaching or suggestion of a step of producing modified coefficient values that does not use coefficients of magnitude greater than a threshold T and does not use corresponding information symbols, the value of the threshold T being set to reduce a likelihood of any coefficient having a dominant effect on a correlation of the pseudo random

00262986

symbol sequence and the information signal in which the data has been embedded, as recited in claim 32.

Therefore, Applicants submit that independent claim 32 is patentable.

For reasons similar to or somewhat similar to those described above with regard to independent claim 32, amended independent claims 39, 41, 43, 44, 46, 54, 56, 58 and 59 are also believed to be patentable.

Therefore, Applicants submit that independent claims 32, 39, 41, 43, 44, 46, 54, 56, 58, 59, 67 and 68 are patentable.

III. DEPENDENT CLAIMS

The other claims are dependent from one of the independent claims, discussed above, and are therefore believed patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.
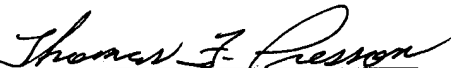
CONCLUSION

In the event the Examiner disagrees with any of statements appearing above with respect to the disclosure in the cited reference or references, it is respectfully requested that the Examiner specifically indicate those portions of the reference or references, providing the basis for a contrary view.

Please charge any additional fees that may be needed, and credit any overpayment, to our Deposit Account No. 50-0320.

In view of the foregoing amendments and remarks, it is believed that all of the claims in this application are patentable and Applicants respectfully request early passage to issue of the present application.

Respectfully submitted,

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